JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2024

PhD CE

COURSE CODE(CREDITS):12M1WCE213(3)   MAX. MARKS: 15

COURSE NAME:Earthquake Resistant Design of Structures

COURSE INSTRUCTORS: Dr. Tanmay Gupta   MAX. TIME: 1 Hour

Note: (a)All questions are compulsory. (b)Marks are indicated against each question in square brackets.(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.1 Write short notes on the following:

(a) Earth's crust

(b) Earth's mantle

(c) Causes of volcanic earthquakes

(d) Seismic waves

(e) Subduction zone   [5]

Q.2 On what is the assignment of an earthquake's magnitude based? Is magnitudethe same as intensity? Explain.   [2]

Q.3(a) How is the epicentre of an earthquake located? (b) Discuss briefly the need of seismic zoning   [4]

Q.4An SDOF system is modelled as shown in Figure below. It has the following properties. Mass, m = 2 kg Stiffness, k = 15,000 N/m Coefficient of damping, c = 45 N/m/s Determine the natural circular frequency, damping factor, and damped frequency of the system Write the equation of free response for determining the time history response of the system.   [4]